Lesson Searching for Life

(Original activity is from *Destination Mars Activity Packet,* NASA Johnson Space Center Houston, Astromaterials Research and Exploration Science.)

These three activities have been grouped to encourage students to think about the characteristics of life and about the possibility of looking for life on Mars.

Activity 1 — Imaginary Martians

Students will listen to one or more excerpts from science fiction that describe a fictional living organism from Mars. They will then draw their interpretations of the creatures and compare them to what they already know about life on Mars today.

Activity 2 — Looking for Life

Part A: An Operational Definition of Life Students will research characteristics of living organisms and develop a chart that will help them define important features of a living organism.

Part B: It's Alive! They will then use their definition to determine whether there is anything alive in three different soil samples, an experiment similar to the Mars Viking Lander in 1976 that looked for signs of life. Students will record their observations and draw pictures as they collect data from the samples.

Activity 3 — Mars Critters

Students will design a plant or animal life form that might survive on Mars.

Activity 1 — Imaginary Martians

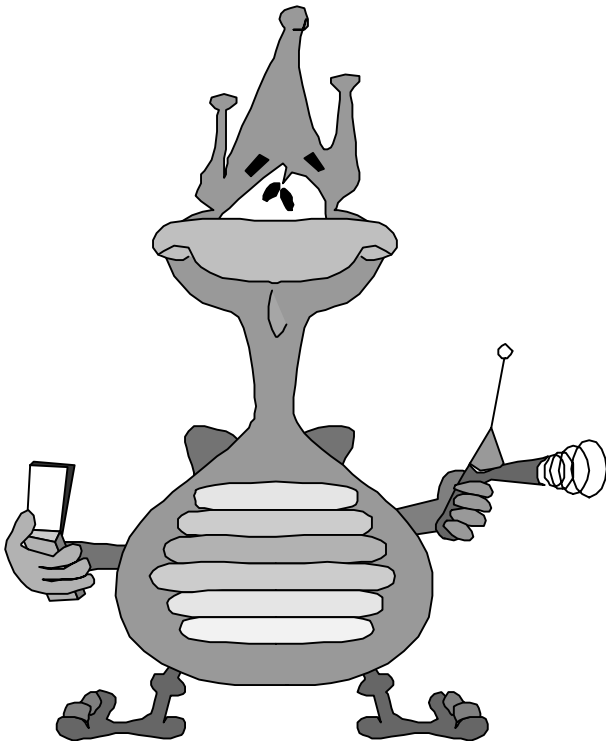
About This Activity

Students will listen to one or more excerpts from science fiction that will describe fictional living organisms from Mars. They will then draw their interpretations and compare them to what they already know about life on Mars today.

Objectives

Students will:

- draw their interpretation of a Martian after listening to a science fiction reading.
- analyze the realism of this Martian based on today's knowledge of Mars environment.
- discuss the popularity of Mars in literature.



Background

There are many science fiction stories related to Mars. Each one has its own explanation of how a Martian might look. The descriptions are based on the author's imagination and the known information about Mars from the time period. In this interdisciplinary activity, students will interpret an author's description of a Martian (language arts and art) and evaluate the possibility of such a creature living on Mars (science).

Vocabulary

interpretation, atmosphere, radiation

Materials

- ❑ drawing paper
- ❑ coloring utensils
- ❑ Student Sheet, *If You Went to Mars* (pg. 3)
- ❑ excerpts from science fiction novels Examples are Mars by Ben Bova (chapter 7), Out of the Silent Planet by C. S. Lewis (chapter 7), The Martian Chronicles by Ray Bradbury (February 1999-YUa), The Day The Martians Came by Frederick Pohl (chapter 17)

Procedure

Advanced Preparation

1. Check various novels and choose excerpt(s) to use.
2. Practice reading the excerpt(s).
3. Distribute student supplies.
4. Distribute the *If You Went to Mars* student sheet.

Classroom Procedure

1. Explain to the students that people in the past have had very different ideas of what life is like on Mars and that you would like to share some of these interpretations with them.
2. Ask the class to close their eyes and listen to the reading(s).
3. Read the excerpt(s) with animation and sound effects.
4. Tell the students to open their eyes, take the drawing materials of their choice, and draw what they think the author(s) described.
5. Ask the students why they think the author wrote the descriptions in this way. Discuss answers in terms of the literature and the time when the story was written.
6. Ask the students why they think there is so much literature about the planet Mars?
7. Ask each student to explain why the alien drawn could or could not really be found on Mars.
8. Discuss what it would be like to live on Mars. Use the *If You Went to Mars* student sheet.

Alternatives

1. Instead of a standard sheet of paper, have the students work in groups using a large sheet of butcher paper. Then you can also discuss how differently we each interpret what we hear. Display art.
2. Divide the class into teams and read several different excerpts, each team drawing an interpretation of a separate excerpt, then comparing the team drawings. Display art.

If You Went to Mars

from "Guide to the Solar System,"
by The University of Texas, McDonald Observatory

Mars is more like Earth than any other planet in our solar system but is still very different. You would have to wear a space suit to provide air and to protect you from the Sun's rays because the planet's thin atmosphere does not block harmful solar radiation. Your space suit would also protect you from the bitter cold; temperatures on Mars rarely climb above freezing, and they can plummet to -129ºC (200 degrees below zero Fahrenheit). You would need to bring water with you; although if you brought the proper equipment, you could probably get some Martian water from the air or the ground.

The Martian surface is dusty and red, and huge duststorms occasionally sweep over the plains, darkening the entire planet for days. Instead of a blue sky, a dusty pink sky would hang over you.